June 10, 1930. C. H. TURNER 1,763,490

SLEEPING CAR STRUCTURE

Filed Jan. 3, 1929 5 Sheets-Sheet 1

Fig. 1.

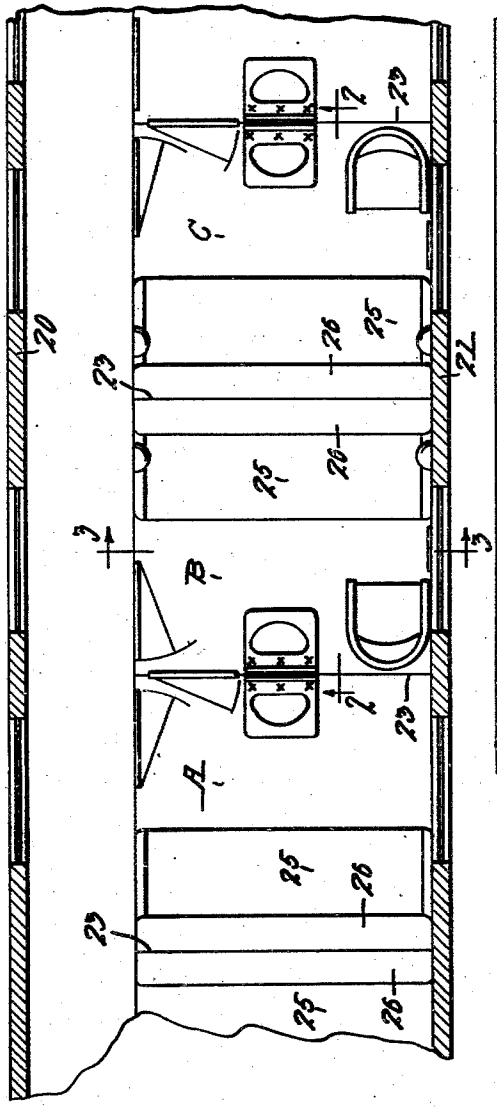
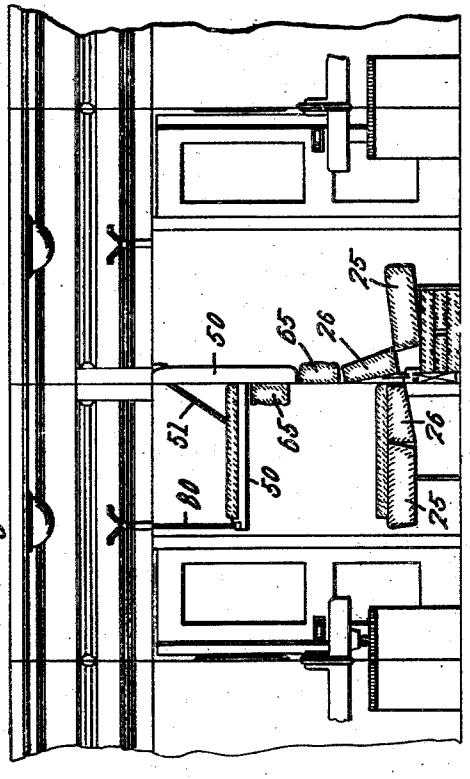


Fig. 2.



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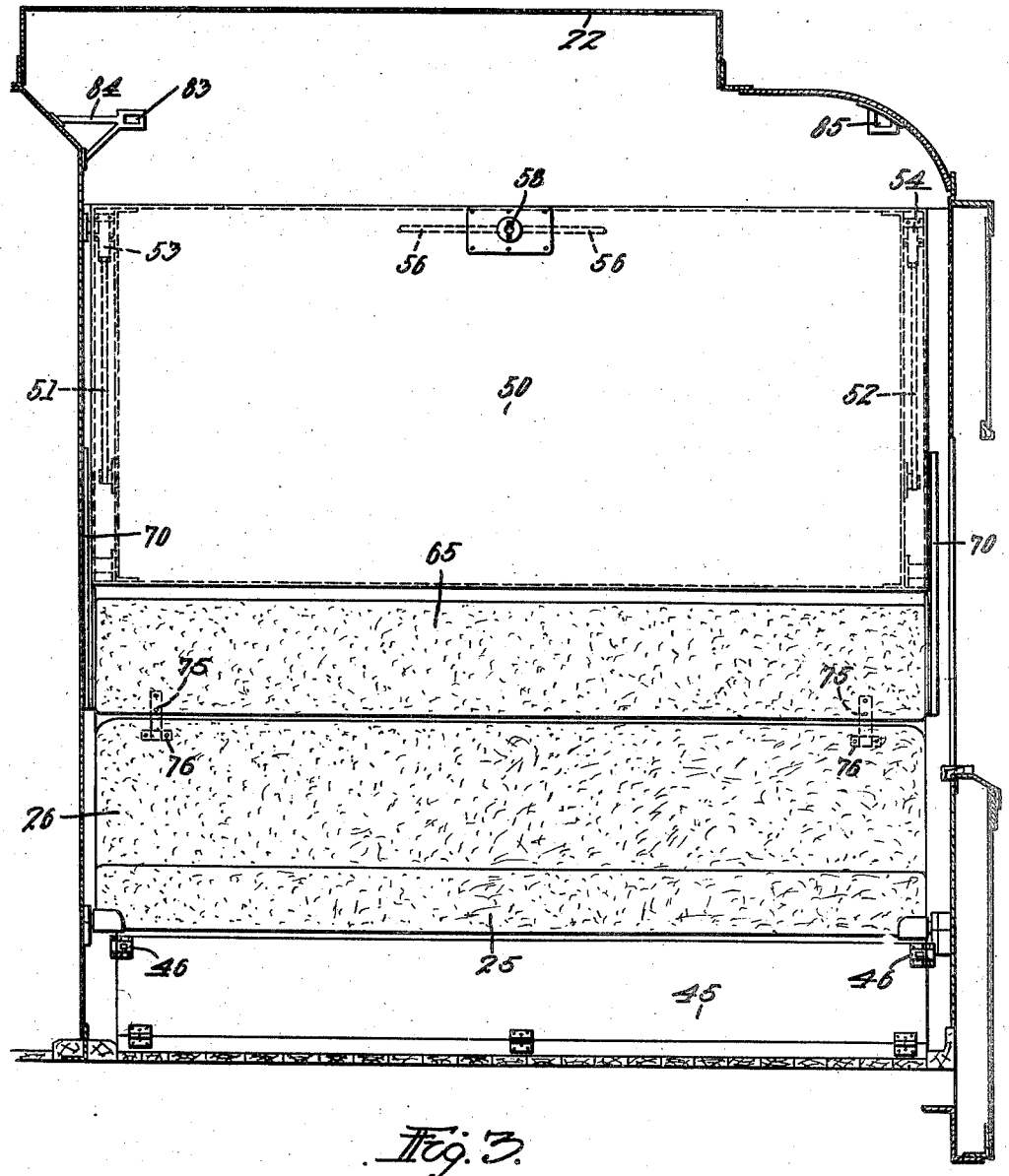


Fig. 3.

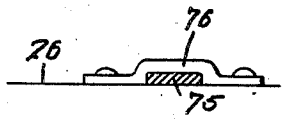


Fig. 17.

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SLEEPING CAR STRUCTURE

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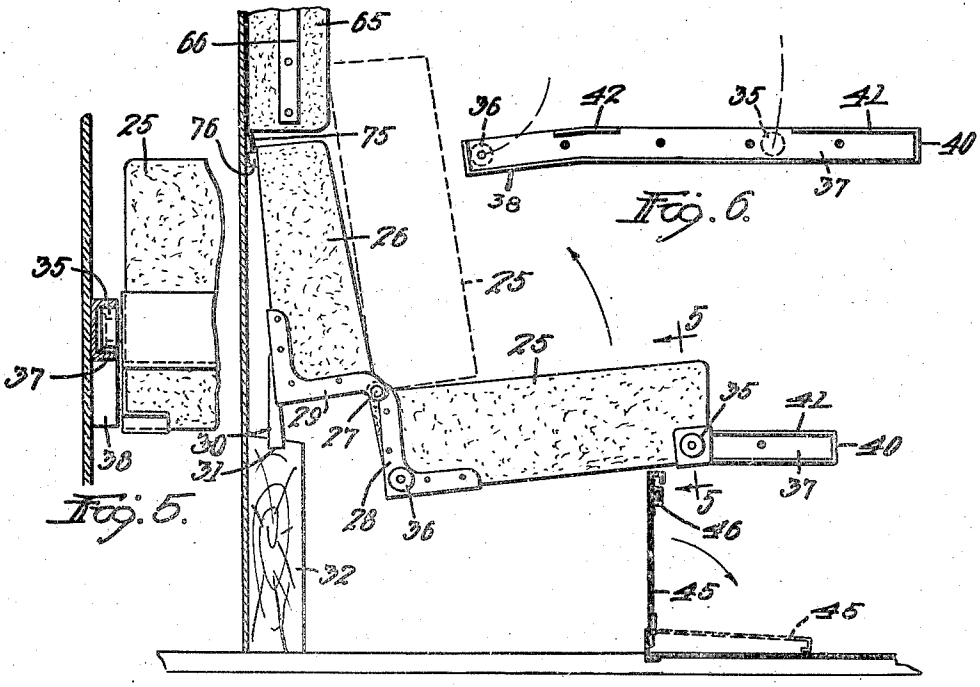


Fig. 5.

Fig. 6.

Fig. 4.

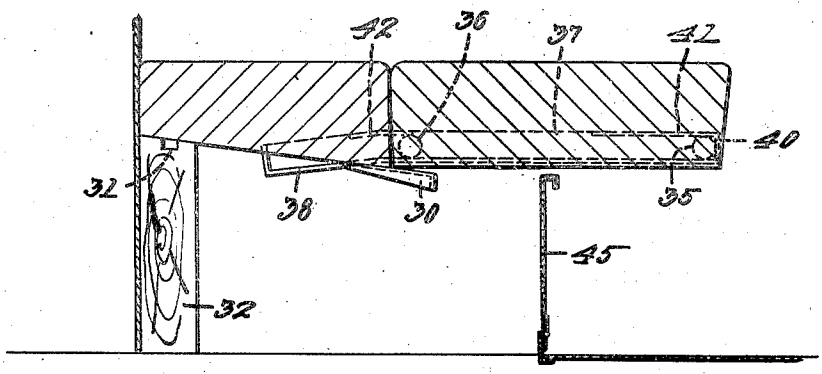


Fig. 7.

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SLEEPING CAR STRUCTURE

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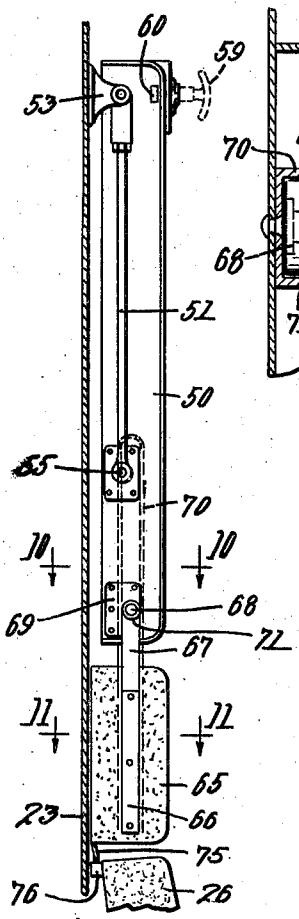


Fig. 8.

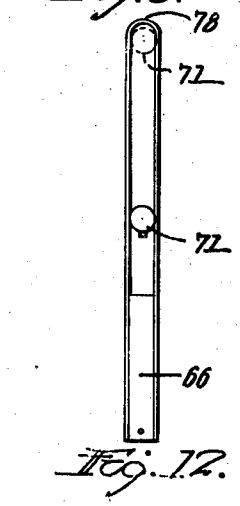


Fig. 12.

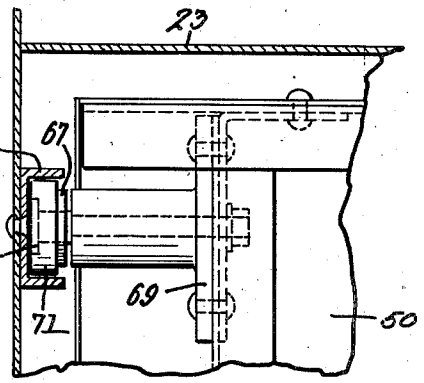


Fig. 10.

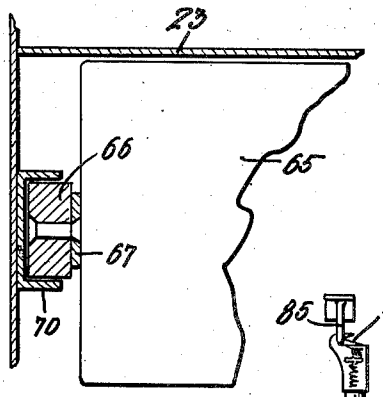


Fig. 11.

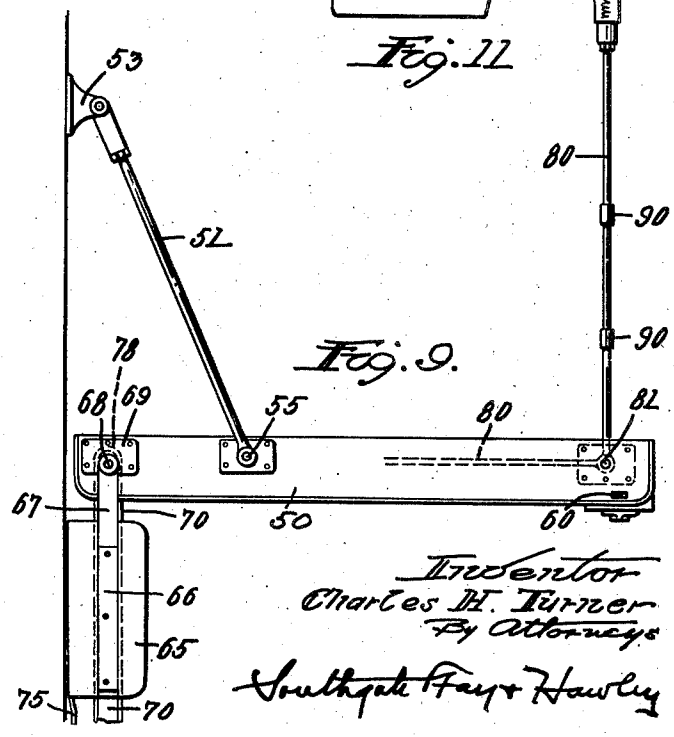


Fig. 9.

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SLEEPING CAR STRUCTURE

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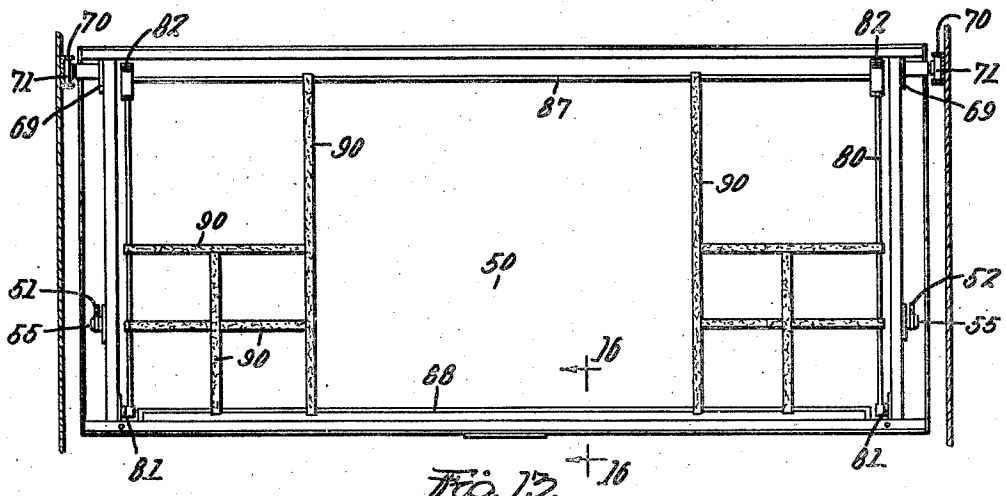


Fig. 13.

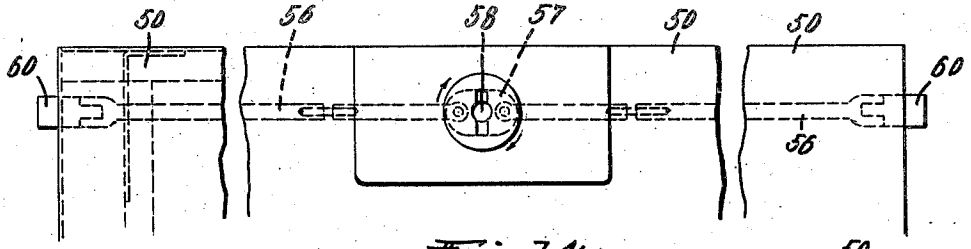


Fig. 14.

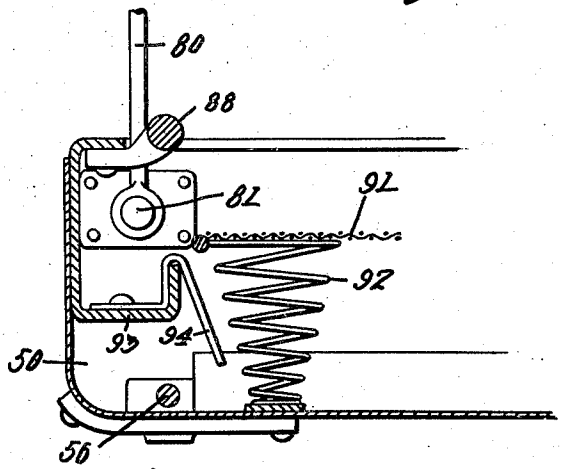


Fig. 16.

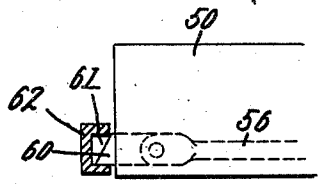


Fig. 15.

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UNITED STATES PATENT OFFICE

CHARLES H. TURNER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO OSGOOD BRADLEY CAR COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

SLEEPING-CAR STRUCTURE

Application filed January 3, 1929. Serial No. 330,028.

This invention relates to car construction and particularly to sleeping car structure.

In the design of sleeping cars the main purpose and objective is to provide an interchangeable seat and berth construction so arranged as to furnish adequate and comfortable seating and sleeping facilities.

This invention has for its salient object to provide a sleeping car structure so constructed and arranged as to furnish a maximum of convenience and comfort in the seating and sleeping arrangements.

Another object of the invention is to provide a folding berth structure so constructed and arranged as to facilitate the movement thereof from folded to open position and vice versa.

Another object of the invention is to provide a folding berth structure so combined with a seating arrangement that the frame of the berth will be counterbalanced by the head rest of the seat.

Another object of the invention is to provide a simple and practical combination seat and bed structure so arranged as to give a maximum of comfort in either use thereof.

Other objects of the invention will appear from the following specification taken in connection with the drawings which form a part thereof, and in which

Fig. 1 is a horizontal sectional elevation of a portion of a sleeping car having compartments and equipment construction in accordance with the invention;

Fig. 2 is a sectional elevation taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a sectional elevation taken substantially on line 3—3 of Fig. 1;

Fig. 4 is a sectional elevation, partly broken away, illustrating the combination seat and bed construction;

Fig. 5 is a detail sectional elevation taken substantially on line 5—5 of Fig. 4;

Fig. 6 is an elevational view illustrating one of the guide frames for the seat structure, shown in Fig. 4;

Fig. 7 is a view similar to Fig. 4, but showing the seat cushions arranged for use as a bed;

Fig. 8 is a sectional elevation illustrating the folding bed frame and mounting therefor;

Fig. 9 is a view similar to Fig. 8, the folding bed frame being swung outwardly and downwardly to open position;

Figs. 10 and 11 are sectional detail elevations on enlarged scale, taken substantially on lines 10—10 and 11—11 of Fig. 8;

Fig. 12 is an elevational view showing the guide frame for the folding bed frame and head rest connected thereto;

Fig. 13 is a plan view, partly in section, of the bed frame and the parts carried thereby;

Fig. 14 is an elevational view, partly broken away, showing the locking means for locking the bed frame in folded position;

Fig. 15 is a detail sectional elevation showing one end of the locking means illustrated in Fig. 14;

Fig. 16 is a detail sectional elevation on enlarged scale, taken substantially on line 16—16 of Fig. 13; and

Fig. 17 is detail section of means for retaining seat section 26 against the wall when head rest is in its lowered position.

The invention briefly described, resides in the construction and arrangement of a combination seat and bed structure, and also in the construction, arrangement and mounting of a folding bed frame. The combination seat and bed comprises a pair of sections hingedly connected together and adapted in one position of adjustment to form a seat, and in another position of adjustment to form a bed support or cushion. The sections are so connected and so guided and supported in their two positions of adjustment that in one position the seat and back cushions are tilted and supported at a slight angle to form a comfortable and convenient seat structure, and furthermore, means are provided for guiding and supporting the cushions in both positions of adjustment in such a manner that they will be firmly positioned.

The folding bed frame is so combined with the seating structure that one of the seat cushions, such as a head-rest, is utilized for counterweighting an upper bed structure when it is swung downwardly and outwardly to open position. Furthermore the

upper bed frame is so supported and guided as to require a minimum amount of effort and strength to raise and lower the frames.

Further details of the invention are set forth more fully in the following specification.

In the embodiment of the invention illustrated in the drawings, there is shown a portion of a sleeping car having side walls 20 and 21, a roof 22, and a plurality of partitions 23 which form sleeping compartments A, B, C, etc.

Each compartment is shown as provided with a chair, wash-stand, and suitable seating and sleeping arrangement. The invention covered in this application resides in certain details of construction in the sleeping and seating structures of the car.

As shown particularly in Figs. 2 to 7 inclusive, the seating facilities include an elongated seat comprising a pair of sections 25 and 26 which are pivotally connected together, as shown at 27. The pivotal connection is formed between suitable brackets 28 and 29 secured to and carried by the sections 25 and 26. When the sections are arranged to provide a seat, the section 25 forms the bottom of the seat, and the section 26 forms a back-rest.

In order to support the section 26 in upright position, downwardly extending lugs 30 are carried thereby and are adapted to seat in channels or grooves 31 formed in the upper edges of posts or members 32.

The section 25 has secured to each end thereof adjacent the front and rear edges and adjacent the bottom of the section, a pair of rollers 35 and 36. These rollers extend into guiding frames or channels 37 secured to the end walls of the compartment and are adapted to support the section 25 in the position shown in Fig. 4, or in the position shown in Fig. 7. When the seat sections are adjusted to the position shown in Fig. 4, the rollers 36 are disposed in downwardly and rearwardly inclined portions 38 of the guiding frames or channels 37 (see Figure 6). Thus the section 25 is supported in a position inclined slightly downwardly and rearwardly. However, when the sections are adjusted to a position to form a bed, the rollers 35 will be disposed in the outer ends of the guiding frames or channels 37, the ends being closed as shown at 40, and having a top wall 41 to prevent the rollers 35 from being lifted out of the channels.

As shown in Figs. 6 and 7 the guiding frames are also provided intermediate their ends with a roof wall 42 which is positioned above the rollers 36 when the section 25 is disposed in its horizontal position. These walls prevent the rollers 36 from leaving the guiding frames, and thus aid in securing the seat sections in the position shown in Fig. 7.

The space beneath the seat sections is utilized for storage, as shown in Fig. 2, and is enclosed by a hinged front wall 45 which is secured in position by latches 46 shown in Fig. 3. The mattresses for the beds may be kept in the storage space as well as the folding ladder used to give access to the upper berth.

The upper berth consists of a bed frame 50 which is supported by a pair of links 51 and 52. The links 51 and 52 are pivoted at their upper ends to a pair of brackets 53 and 54, and at their lower ends are connected to the end walls of the bed frame 50 intermediate the upper and lower edges thereof, as shown at 55.

The folding berth or bed frame is retained in folded position against the wall by means of locking bars 56, which are pivoted at their inner ends to a bar 57, rotatably mounted on a spindle 58 to which is connected a handle 59. The locking bars at their outer ends are provided with extensions 60 adapted to engage beneath, or to be positioned within recesses 61 formed in latch members 62 secured to the side walls of the compartment.

In order to assist in counterweighting or counterbalancing the swinging berth or bed frame 50, a head-rest 65, which is positioned above the back-rest 26 of the seat, is connected to the lower edge of the frame 50 in such a way that as the bed-frame is swung away from the wall, the head-rest will be moved upwardly with the lower or inner edge of the bed frame. This is particularly advantageous since the head-rest 65 is thus moved away from the space above the lower bed formed by the seat sections, affording more room for the occupant of the lower berth.

The head-rest has secured to its ends, bars 66 having extensions 67 pivoted at 68 to brackets 69 connected to the end walls of the bed frame adjacent the lower edges thereof.

In order to guide the head-rest and to retain the lower edge of the bed frame 50 against the wall as the bed frame is swung downwardly, a channel member or guiding frame 70 is secured to each end wall of the compartment. The bars 66, as shown in Fig. 11, are positioned in the channel members or guide frames 70, and a roller 71 is mounted on each pivot 68 and is also positioned in the channel member or guide frame 70.

The head frame has secured to and extending downwardly from the lower edge thereof, a pair of strips or bars 75 which are adapted to be received by brackets or loops 76 secured to the back of the upper edge portion of the seat section 26. When the head-rest is in its lower position or in the position occupied when the upper berth is folded, the strips or bars 75 will extend into the loops 76 and thus retain the seat section 26 in position against the wall.

When the handle 59 is turned and the lock-

ing bars 56 are withdrawn from locking position, a slight pull on the handle will cause the bed frame 50 to swing outwardly and downwardly to the position shown in Fig. 9. During this movement the bars 66 carried by the head-rest 65, will slide upwardly in the channel members or guide frames 70, and the rollers 68 which are carried at the upper ends of the extensions 67 on the pivotal connection between the extensions and the bed frame 50, will travel to the upper closed end 78 of the guide frames 70. The upper closed ends 78 of the guide frames thus serve to limit the upward movement of the lower or inner edge portion of the bed frame 50.

In order to support the outer edge portion of the bed frame there are provided a pair of rods 80 pivoted at their lower ends, as shown at 81, to the bed frame and having at their upper ends hooks 82. One of the hooks 82 is adapted to engage an eye 83 formed in a bracket 84 secured to the wall in the upper portion of the compartment. The other hook is adapted to engage an eye 85 secured inside the ceiling of the compartment.

The rods 80 are connected at their ends by a cross rod 87, and a hand bar or rod 88 is secured to the bed-frame adjacent the front ends thereof. Straps 90 are connected to the rods 80, 87 and 88, and prevent the occupant of the upper berth from accidentally rolling out of the berth.

Fig. 16 illustrates in section the spring construction within the upper berth frame. As shown in this figure, a wire frame 91 is mounted above the springs 92 and an inwardly extending annular flange 93 within the bed frame 50 has secured thereto and extending inwardly and downwardly therefrom, a guard or shield 94. The guard or shield 94 tends to retain the wire frame and springs in position, and to prevent the spring mattress construction from being held in compressed position.

In the day time the lower berth will be made up as a seat, as shown in Fig. 4. This is readily done by lifting the rear section 26 about the pivot 27 and shifting the two sections rearwardly. The lugs 30 will seat in the recesses in the upper ends of the posts 32 and support the section 26 in elevated position, and the rollers 36 which are carried by the section 25 will be positioned in the left-hand ends of the guiding frames 38, viewing Fig. 7. When the lower berth is to be made up the section 25 is moved forwardly to the position shown in Fig. 7, in which the rollers 35 are located at the outer ends of the guide frames 38 and the inner edge of the section 26 rests on the upper ends of the posts 32.

In order to lower the frame of the upper berth, the handle 59 is turned to release the locking bars 66 and the frame is pulled downwardly. As the frame swings about the pivotal connection 55 with the links 51, the lower or inner edge of the frame will swing upwardly carrying with it the head-rest 65. The head-rest thus tends to counterbalance the weight of the swinging frame 50. During the upward movement of the lower or inner edge of the frame 50, the bars 66 will be guided by the channel members 70 and the rollers 71 will also be guided by the frames 70. The upper ends 78 of the channel members 70 limit the upward movement of the rollers 71.

The rods 80 are then lifted and the hooks 82 are snapped through the eyes 83 and 85. The mattresses can then be removed from beneath the seat section 25 and the upper or lower berths can be made up.

Although one specific embodiment of the invention has been particularly shown and described, it will be understood that the invention is capable of modification, and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention as expressed in the following claims.

I claim—

1. In a sleeping car, a bed frame, a supporting structure, supporting and guiding means connected to said supporting structure and to said frame intermediate the upper and lower edges thereof, counterweighting means connected to the frame adjacent its lower edge, and means for supporting the outer edge of the frame when it is swung downwardly and outwardly.

2. In a sleeping car, a bed frame, a supporting structure, supporting and guiding means connected to said supporting structure and to said frame intermediate the upper and lower edges thereof, counterweighting means connected to the frame adjacent its lower edge, and means for limiting the upward movement of the rear edge of the frame when the frame has been swung to open position.

3. In a sleeping car, a bed frame, a supporting structure, supporting and guiding means connected to said supporting structure and to said frame intermediate the upper and lower edges thereof, and guiding means for holding the lower edge of said frame against the supporting structure as the bed frame is swung outwardly away from said supporting structure.

4. A sleeping car structure comprising a car wall, supporting and guiding links pivoted thereto, a bed frame connected to said links intermediate the upper and lower edges thereof when the frame is folded, and means for supporting the outer edge of the bed frame when the frame is swung downwardly.

5. A sleeping car structure comprising a car wall, supporting and guiding links pivoted thereto, a bed frame connected to said links intermediate the upper and lower

edges thereof when the frame is folded, and means for holding the frame against the wall.

6. A sleeping car structure comprising a car wall, supporting and guiding links pivoted thereto, a bed frame connected to said links intermediate the upper and lower edges thereof when the frame is folded, and counterweighting means connected to the frame below the connection of the links thereto.

7. A sleeping car structure comprising a car wall, supporting and guiding links pivoted thereto, a bed frame connected to said links intermediate the upper and lower edges thereof when the frame is folded, and counterweighting means connected to the frame below the connection of the links thereto, said means consisting of a cushion member, and means for holding said cushion member against the wall during its movement with the bed frame.

8. A sleeping car structure, comprising a car wall, an upper bed frame adapted to swing downwardly and outwardly away from the wall, a seat structure beneath the bed frame, a head rest therefor, and means connecting said head rest to said bed frame in a manner whereby the head rest will act as a counterweight as the frame moves to open position.

9. A sleeping car structure comprising a car wall, an upper bed frame adapted to swing downwardly and outwardly away from the wall, means for supporting and guiding said bed frame in its downward and outward movement in a manner to cause the lower edge portion of the folded frame to move upwardly, a seat structure beneath the bed frame, a head rest therefor, and means connecting said head rest to the lower edge portion of said bed frame in a manner whereby the head rest will act as a counterweight as the frame moves to open position.

10. A sleeping car structure comprising a car wall, an upper bed frame adapted to swing downwardly and outwardly away from the wall, link structure for supporting and guiding said bed frame in its downward and outward movement in a manner to cause the lower edge portion of the folded frame to move upwardly, a seat structure beneath the bed frame, a head rest therefor, and means connecting said head rest to the lower edge portion of said bed frame in a manner whereby the head rest will act as a counterweight as the frame moves to open position.

11. A sleeping car structure, comprising a car wall, a bed frame adapted to swing downwardly and outwardly away from the wall, a seat structure beneath the bed frame, a head rest therefor, and link structure connecting said head rest to said bed frame in a manner whereby the head rest will act as a counterweight as the frame moves to open position.

In testimony whereof I have hereunto affixed my signature.

CHARLES H. TURNER.